magnitude varies for an application depending on the intended use and the distance from the anode structure 30 to the emitter 50. For instance, with anode structure 30 being a recordable medium for a storage device, V_a might be chosen to be between 500 and 1000 Volts. The lens 28 focuses the electron emission 16 by forming an electric field 34 within its aperture. By being set at a proper voltage from V_e, the electrons emitted from the emitter 50 are directed to the center of the aperture and then further attracted to the anode structure 30 to form the focused beam 32.

In the Abstract:

Please substitute the following for the abstract:

An emitter has an electron supply layer and a tunneling layer formed on the electron supply layer. Optionally, an insulator layer is formed on the electron supply layer and has openings defined within which the tunneling layer is formed. A cathode layer is formed on the tunneling layer to provide a surface for energy emissions of electrons and/or photons. Preferably, the emitter is subjected to an annealing process thereby increasing the supply of electrons tunneled from the electron supply layer to the cathode layer.

In the Claims:

1. (Amended) An emitter, comprising:

an electron supply;

a cathode layer; and

a tunneling layer disposed between the electron supply and the cathode layer wherein the electron supply, cathode layer, and tunneling layer have been subjected to an annealing process.

7. (Amended) The emitter of claim 1 operable to provide an emission current of greater than 1×10^0 Amps per square centimeter.